AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A diagnostic method for detecting and identifying bacterial species causing infections from a clinical sample, comprising

a) amplifying DNA isolated from said clinical sample using a mixture of DNA primers that comprises sequences which hybridize with the sequences that originate from conserved regions of genes encoding topoisomerases of bacterial species causing said infections, said sequences comprising sequences identified with SEQ ID NO: 76 and 77 or with complementary sequences thereof or functional fragments thereof,

b) contacting the amplified DNA with a desired combination of oligonucleotide probe sequences that hybridize under normal hybridization conditions with hyper-variable regions situated near said conserved regions of genes encoding topoisomerases of bacterial species causing said infections, said sequences being bacterial species-specific under said hybridization conditions, and

c) detecting the formation of a possible hybridization complex.

2. (Previously Presented) The diagnostic method according to claim 1, wherein said topoisomerase is selected from *gyrB and parE and* said infections causing bacterial species are bacterial species that cause respiratory tract infections.

3. (Previously Presented) The diagnostic method according to claim 1 , wherein said hyper-variable region is the hyper-variable region of the gene encoding the *gyrB* and/or *parE* protein of a bacterial species selected from *Streptococcus pneumoniae, Streptococcus pyogenes, Chlamydia pneumoniae, Mycoplasma pneumoniae, Haemophilus influenzae, Staphylococcus aureus, Pseudomonas aeruginosa, Neisseria gonorrhoeae, Escherichia coli, Moraxella catarrhalis, Legionella pneumophila*, and *Fusobacterium necrophorum*.

4. (Previously Presented) The diagnostic method according to claim 1, wherein the length of oligonucleotide probe sequences used in step b) is 15 – 30, more preferably 20 – 30, and most preferably 21 – 25 nucleic acids.

5. (Previously Presented) The diagnostic method according to claim 1, wherein in that said combination of oligonucleotide probe sequences comprises all or a portion of the sequences identified with SEQ ID NO: 1 to 69, and/or complementary sequences thereof, or functional fragments thereof.

6. (Previously Presented) The diagnostic method according to claim 5, wherein said combination of oligonucleotide probe sequences comprises all the sequences identified with SEQ ID NO: 1 to 69.

7. (Previously Presented) The diagnostic method according to claim 1, wherein said combination of oligonucleotide probe sequences is attached onto a solid support.

8. (Previously Presented) The diagnostic method according to claim 1, wherein the DNA isolated from the clinical sample in step a) is amplified using the polymerase chain reaction (PCR) and that the DNA amplified in step b) is contacted with bacterial species-specific oligonucleotide probes attached onto a solid support.

9. (Previously Presented) The diagnostic method according to claim 7 , wherein said solid support is treated glass.

10. (Previously Presented) The diagnostic method according to claim 1, wherein suitably labeled nucleotides are used in the amplification of DNA isolated from a clinical sample in step a) to generate a detectable target strand.

11. (Previously Presented) The diagnostic method according to claim 9 , wherein the amplified and optionally labeled target DNA in step b) is contacted with a solid support, on which all bacterial species-specific oligonucleotide probes identified with SEQ ID NO: 1 to 69 and/or complementary sequences thereof have been attached.

12. (Previously Presented) The diagnostic method according to claim 11, wherein the amplified and optionally labeled target DNA in step b) is contacted with a solid support on which specific oligonucleotide probe sequences detecting one specified bacterial species or a few specified bacterial species causing infections have been attached, said sequences being selected from sequences shown in Tables 4A and 4B and/or complementary sequences thereof.

13. (Currently Amended) The diagnostic method according to claim 1, wherein ~~that the~~ microarray technology is used in step c).

14. (Previously Presented) A DNA primer mixture comprising sequences that hybridize with sequences of the conserved regions of genes encoding topoisomerases of bacterial species that cause infections, said mixture comprising sequences identified with SEQ ID NO: 76 and 77 and/or reversed or complementary sequences thereof or functional fragments thereof.

15. (Currently Amended) An oligonucleotide probe sequence useful in the diagnosis of infection causing bacterial species, wherein said oligonucleotide probe sequence hybridizes under normal hybridization conditions with a sequence of a hyper-variable region that can be amplified by primer sequences identified with SEQ ID NO: 76 and 77 and/or reversed or complementary sequences thereof or functional fragments thereof, that is bacterial species-specific, and that is situated near the conserved regions of genes encoding topoisomerases, said oligonucleotide probe sequence being one of the sequences identified with SEQ ID NO: 1 to 69 and/or complementary sequences thereof or functional fragments thereof.

16. (Canceled)

17 (Canceled)

18. (Canceled)

19. (Previously Presented) A diagnostic kit for use in the diagnosis of infection-causing bacteria comprising

a) a DNA primer mixture comprising sequences that hybridize with sequences of the conserved regions of genes encoding topoisomerases of bacterial species that cause infections said mixture comprising sequences identified with . SEQ ID NO: 76 and 77 and/or complementary sequences thereof or functional fragments thereof

b) a combination of bacterial species-specific oligonucleotide probe sequences comprising any combination of the sequences identified with . SEQ ID NO: 1 to 69 and/or complementary sequences thereof or functional fragments thereo,

c) positive and optionally negative control probe sequences, and optionally

d) reagents required in the amplification, hybridization, purification washing, and/or detection steps.

20. (Previously Presented) A diagnostic kit of claim 19, wherein said toposiomerases are selected from the *gyrB* and/or *parE* proteins of bacterial species that cause respiratory tract infections.

21. (Previously Presented) A diagnostic kit of claim 20, wherein said combination of oligonucleotide probe sequences is attached onto a solid support.

22. (Previously Presented) The DNA primer mixture of claim 14, wherein said toposio-merases are selected from the *gyrB* and/or *parE* proteins of bacterial species that cause respiratory tract infections.